

SECTION 05500

METAL FABRICATIONS

This Section includes ladders and other steel and aluminum fabricated metal items not included in sections; 05120 Structural Steel, 05140 Structural Aluminum, 05510 Metal Stairs, 05520 Handrails and Railings, 05531 Gratings and Floor Plates.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Shop fabricated metal items; galvanized, prime painted, or mill finish.

1.2 SUBMITTALS

- A. Submit the following in accordance with the requirements of Section 01300.
 - 1. Shop drawings describing each fabricated item.
 - a. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
 - b. Include erection drawings, elevations, and details where applicable.
 - c. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.
 - 2. Catalog data describing each manufactured metal item.
 - 3. Certificate of compliance for:
 - a. Steel ladders.
 - b. Fall arresters.
 - 4. Welders certification.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle metal items:
 - 1. With equipment of adequate capacity
 - 2. Without overstressing or permanently deflecting material.
 - 3. Without damaging finish.
- B. Deliver manufactured material in original unopened packages, containers, or bundles with manufacturer's label intact and legible.
- C. Store materials off ground, under cover, and away from damp surfaces.
- D. Remove damaged, unlabeled or unsatisfactory materials which do not meet this specification from job site.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide steel sections and plate conforming to ASTM A36.
- B. Provide steel tubing conforming to ASTM A500, grade B.
- C. Provide steel pipe conforming to ASTM A53, type E or S, grade B.
- D. Provide aluminum sections conforming to ASTM B221, 6061-T6 alloy, mill finish.
- E. Provide aluminum plates conforming to ASTM B209, 6061-T6 alloy, mill finish.
- F. Provide standard bolts conforming to ASTM A307.
- G. Provide high strength bolts conforming to ASTM A325.
- H. Provide nuts conforming to ASTM A563, type and grade as specified in ASTM A307 and A325.
- I. Provide flat and beveled washers conforming to ASTM F436.
- J. Provide prevailing torque type self locking nuts conforming to IFI-100, grade A, zinc coated.
- K. Provide spring type lock washers conforming to ANSI B27.1.
- L. Provide welding materials in accordance with AWS D1.1 and D1.2 for materials being welded.
- M. Provide general use primer conforming to FS TT-P-31, red; for shop application and field touch-up.
- N. Provide touch-up primer for galvanized surfaces conforming to FS TT-P-641.
- O. Provide primer for aluminum to be in contact with steel conforming to FS TT-P-645.
- P. Provide grout conforming to the following:
 - 1. Non-shrink type, pre-mixed compound consisting of non-metallic aggregates, cement, water reducing, and plasticizing additives, capable of developing a minimum compressive strength of 7,000 psi at 28 days.
- Q. Provide expansion type concrete anchors conforming to FS S-325 Type II.
- R. Provide Headed Steel Anchors (HSA) as manufactured by TRW Nelson Division type [H4L] or approved equal.

2.2 FABRICATION

- A. Verify dimensions on site prior to shop fabrication.
- B. Fabricate items with joint tightly fitted and secured.
- C. Fit and shop assemble in largest practical sections, for delivery to site.
- D. Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of structure, except where specifically noted otherwise.

- F. Make exposed joints butt tight, flush, and hairline.
- G. Supply components required for anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, except where specifically noted otherwise.
- H. Provide ladders conforming to OSHA 29 CFR Part 1910, Section 1910.27 - Fixed Ladders and ANSI A14.3 - Safety Code for Fixed Ladders.
- I. Certify Welders in accordance with AWS D1.1 and AWS D1.2.

2.3 FINISH OF STEEL FABRICATIONS

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Do not prime surfaces in direct contact bond with concrete or where field welding is required.
- C. Prime items with one coat.

PART 3 EXECUTION

3.1 PREPARATION

- A. Obtain Contract Administrator approval prior to site cutting or making adjustments to metal items.
- B. Clean and strip site primed steel items to bare metal where site welding is scheduled.
- C. Make provision for erection loads with temporary bracing. Keep work in alignment.
- D. Supply items required to be cast into concrete with setting templates, to appropriate Sections.

3.2 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Perform field welding in accordance with AWS D1.1 and AWS D1.2.
- C. After installation, touch-up field welds and scratched or damaged surfaces on metal fabrications with primer.

END OF SECTION